ARIS GRID Editor for ArcMap 10
User's Manual

13 March 2014

ARIS B.V.
http://www.aris.nl/

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1. Introduction

The ARIS GRID Editor for ArcMap is designed to edit ESRI GRID datasets easily in ArcMap, without the need of Spatial Analyst. One can, for instance, change the value of a single cell, or change the value of more cells by sketching in the map.

One possible use of the ARIS GRID Editor is to correct errors in an existing GRID. For example, when a GRID is input for a model, NODATA cells and wrong cell values at the edges of the GRID can cause the model to create wrong output data. With the ARIS GRID Editor these cell values can simply be modified.

The ARIS GRID Editor can also be used as a sketch tool. The GRID Editor can be used to interactively design plans, which can be processed and evaluated with Spatial Analyst tools immediately.

ARIS GRID Editor version 2.2 is the release for ArcMap 9.2, 9.3 or 9.3.1.

ARIS GRID Editor version 3.0 can be used with ArcMap version 10.0.

In ARIS GRID Editor version 3.1 and 2.2 functionality has been added to work within a selection area and to replace values "by value" throughout the GRID. This version is not an ArcGIS extension anymore, but just a toolbar to make the use of the GRID Editor easier.

ARIS GRID Editor version 3.1 can be used with ArcMap 10.0 and 10.1.

ARIS GRID Editor version 3.2 can be used with ArcMap 10.0, 10.1 and 10.2. New functionality is setting pen size and editing in the original GRID.

ARIS GRID Editor version 3.2 can be used with ArcMap 10.0, 10.1, 10.2 and 10.2.1.

This manual only describes the ARIS GRID Editor for ArcMap 10 version. For other ArcGIS versions check the GRID Editor website:

http://www.aris.nl/grideditor_arcmap

2. Installation

2.1 Requirements

Required is one of the following ArcGIS 10.0, 10.1, 10.2 or 10.2.1 licenses:
- ArcView / ArcGIS for Desktop Basic
- ArcEditor / ArcGIS for Desktop Advanced
- ArcInfo / ArcGIS for Desktop Enterprise

Additional extensions like Spatial Analyst are not required.

For other ArcGIS versions check the GRID Editor website:

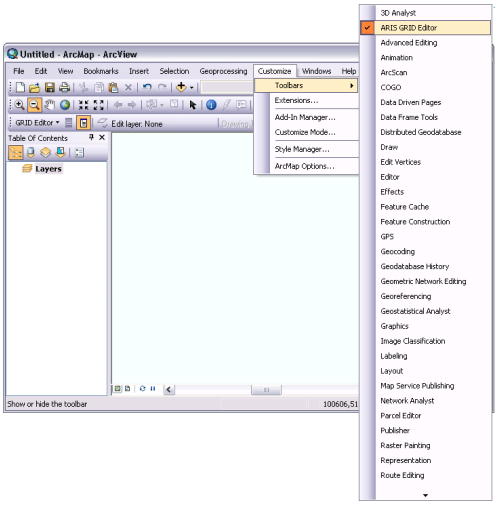
http://www.aris.nl/grideditor_arcmap

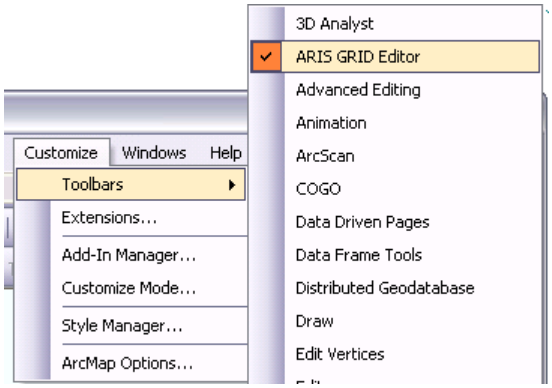
2.2 Install

Installation of the ARIS GRID Editor for ArcMap is accomplished by the following steps:

1. Execute the automatic installer, ArisGridEditor32.exe. You need to be logged in as administrator to run the installer;

2. In ArcMap 10, from the *Customize* menu choose *Toolbars* and make sure there is a checkmark next to ARIS GRID Editor to make the toolbar visible.





3. Registration

3.1 Trial license

The distributed version of the ARIS GRID Editor is an almost full functional version with a trial license (Stop Editing will not work when in trial mode). This means it can be used for evaluation purposes for 5 days. After this period, the GRID Editor will be locked until a valid licence key is entered.
While in trial mode, each time you start, cancel or stop editing a GRID and each time you change the drawing tool, a reminder message will be shown.

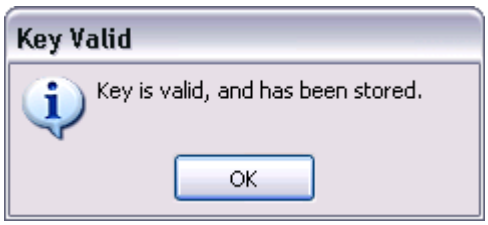
Reminder
The current license for 'ARIS GRID Editor' is a trial license. Press 'Register' to register this product and use the permanent license.
OK button will be enabled in 1 seconds...
Register
OK

Pressing the *Register* button will present you with the following dialog, where you must enter your name and the registration key (If you want to use GRID Editor in trial mode, wait till the *OK* button comes available and press *OK*).

3.2 Register

If you do not yet have a registration key press the *Buy Now!* button. This will take you to our online store, where you can order this product. Note that you will need the hardware fingerprint of the computer where you want to install the tool, shown in the dialog above. After you complete your purchase, a personal registration key will be sent to you by email. Please store this key in a safe place.

Once you have entered a valid registration key, press *OK*. This key will be stored on your pc. The reminder message will not be shown again.



If you have the ARIS License Checker installed, the registration forms are also accessible through the ARIS License Checker. The ARIS License Checker is available without cost from http://www.aris.nl/download.

The ARIS License Checker is also a better alternative for registration if you still get reminder messages after successful registration.

3.3 Unregister

When your license is not valid anymore through changes on your PC or if you want to move your license to a new PC, you can obtain a new license (fair use policy) after you unregister the license using the ARIS License Checker. The ARIS License Checker is available without cost from http://www.aris.nl/download.

Send an e-mail to helpdesk@aris.nl with:

- ARIS product name and version
- Original hardware fingerprint (active license, if available)
- Registration name (active license)
- License key (active license)
- Confirmation code (from unregister)
- New hardware fingerprint (from register)

If you are entitled to receive a new license key, a new key will be sent to you by e-mail as soon as possible (same day, but might also take some days as this is not an automated process).

3.4 Invalid license

When major changes to your hardware have caused the license to become invalid, you can obtain a new valid license if you provide the necessary information (fair use policy). Note that it is no longer possible to get license information using the license checker, use the information in the email you received with your license.

To verify that hardware changes are the cause of the invalid license, you need to send a 'Hardware Change Log' file with the request for a new license.

To get this Hardware Change Log, start ARIS License Checker, select the ARIS product and press the **AHCL** button, you will be asked for a location to store the file.

Send an e-mail to helpdesk@aris.nl with:

- ARIS product name
- Original hardware fingerprint (from license information sent by email)
- Registration name (from license information sent by email)
- License key (from license information sent by email)
- AHCL file (from AHCL)
- New hardware fingerprint (from Register/Enter Key)

4. Version History

4.1 Version 3.0

ArcGIS compatibility

- Version 3.0 of the ARIS GRID Editor for ArcMap can be used with ArcGIS 10.0 (and not with earlier versions of ArcGIS).

Bug fixes

- It is not necessary anymore to remove and add the GRID after Stop Editing to show new values added to the legend in a Unique Values classification.
- Paintcan in a *Floating Point* GRID can now also be used on non-integer values and non-integer NoData values.
- Using a *New cellvalue* outside the scope of the GRID (depending on Pixel Type and Pixel Depth) will no longer result in a conversion error, but will give a warning when entering such a value in the *New cellvalue* edit box.

4.2 Version 3.0.1

Bug-fix

Licenses keep registered better now in specific situations (like Windows 7 laptops).

4.3 Version 3.1

ArcGIS compatibility

- Version 3.1 of the ARIS GRID Editor for ArcMap can be used with ArcGIS 10.1 (and ArcGIS 10.0).

Changed functionality

- The ARIS GRID Editor for ArcMap is not an extension anymore. Just enable the ARIS GRID Editor toolbar and start working.
- "Start Editing" is available as soon as the toolbar is enabled. If no ESRI GRID is selected, Start Editing will tell you.
- Some messages in popups, now show up in a mouse tip.
- A new message popup after "Start Editing" and "Cancel Editing" as long as the edit layer is being created or removed (because creating and removing the edit layer can take a long time especially with a large GRID).
- The ArcMap "Undo" is disabled while editing, because "Undo" is not supported by the ARIS GRID Editor. To Undo changes use the "Restore original values"-tool (Erase) in the ARIS GRID Editor toolbar.

Additional functionality

After "Start Editing" checks are done on Coordinate System (Spatial Reference) and Pyramids to warn users for possible problems.

Three new commands have been added to the toolbar:

- Make a selection in the map.
- Undo the selection in the map.
- Replace one value with another value (Value Replacer)

If a selection is active, the changes in the GRID by the various tools will be only effective within the selection area.

Performance

Drawing with the polygon-tool is extremely faster now (especially in a large GRID).

Bug-fixes

- Using Paintcan on a floating point GRID might result in some situations in an endless filling of the same cells. This problem should now be solved.

- A Stretched Color Ramp with Invert checked will now give the correct legend in an Edit Session.

4.4 Version 3.2

ArcGIS compatibility

- Version 3.2 of the ARIS GRID Editor for ArcMap can be used with ArcGIS 10.2 (and still ArcGIS 10.0 and 10.1).

Changed functionality

- The “Undo / Erase new value” tool is now called “Eraser”. The functionality will stay unchanged.
- “Start Editing” is renamed to “Start Editing in a Copy …”
- The “Validate layer” tool has been removed as this functionality is handled already by “Start Editing”

Additional functionality

- Pen size is now available for the tools: Pencil, Line and Eraser. This way it is possible to draw or erase thick lines.
- “Start Editing in Original …” instead of making a copy of the GRID after Start Editing (not available in Trial mode). It is however still possible to edit in a copy of the selected GRID.
- Undo changes through the ArcMap menu “Edit / Undo” is now supported for a limited number of actions when editing in the original GRID.
- An example is now included in the installation for a quick start with the GRID Editor.
- About window in the GRID Editor menu with version information and access to website.

Bug-fixes

- The ARIS GRID Editor now handles the “Missing raster band wavelength properties” error with a stretched value renderer (in ArcGIS 10.1). The error should not occur anymore.
- Selection of Edit Value sometimes resulted in jumping to the next value (Integer GRID with streched value renderer). This is solved.
- The Legend of the Value Replacer is now refreshed after changing the symbology of the edit layer.

4.5 Version 3.2.1

ArcGIS compatibility

- Version 3.2.1 of the ARIS GRID Editor for ArcMap can be used with ArcGIS 10.2 and ArcGIS 10.2.1 (and still ArcGIS 10.0 and 10.1).

5. Using the ARIS GRID Editor

5.1 Start editing

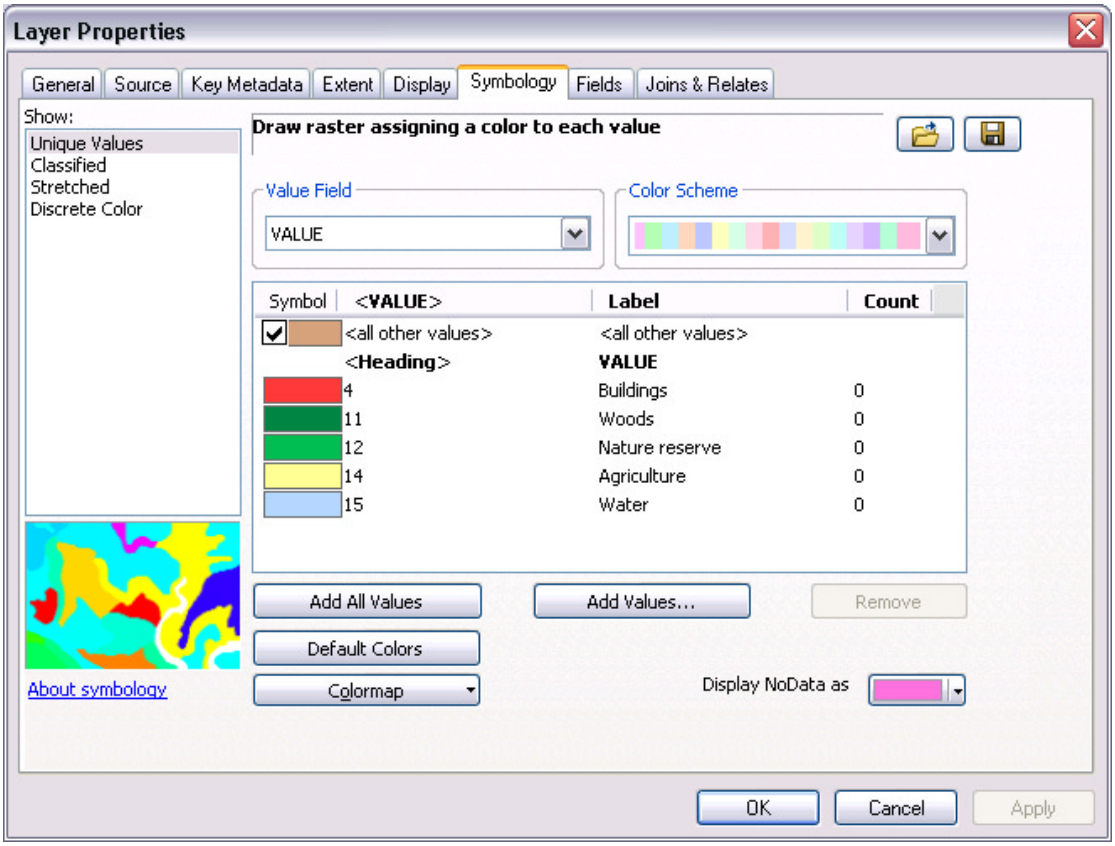
In ArcMap, from the *Customize* menu choose *Toolbars* and make sure there is a checkmark next to ARIS GRID Editor to make the toolbar visible (see also chapter 2 Installation).

Open the example <program files>\ARIS\GridEditor\Example\landuse.mxd or add an ESRI GRID of your choice to the map. For evaluating the ARIS GRID Editor it is advised to use the example first.

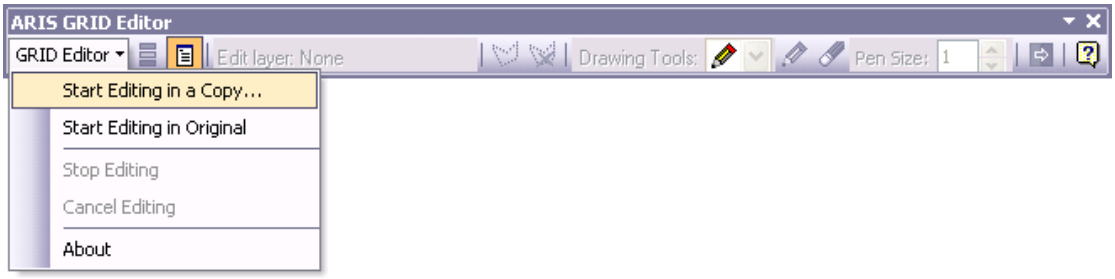
In the table of contents in ArcMap, select “landuse” if you use the example or select another layer which dataset’s format is ESRI GRID.

It is recommended to use a *Unique Values* classification and define the “all other values” symbol.

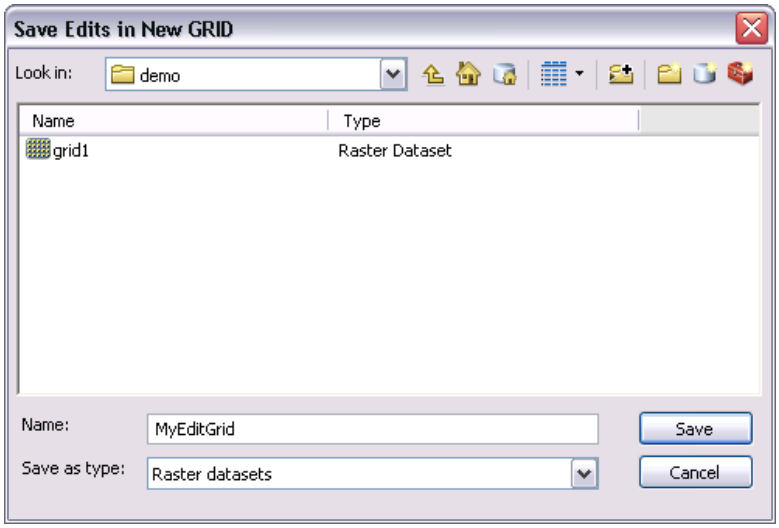
Tip: Set the NODATA symbol and "all other values" symbol to easily detectable symbology (not a hollow symbol) as in the below example.



From the GRID Editor dropdown menu, choose *Start Editing in a Copy*...



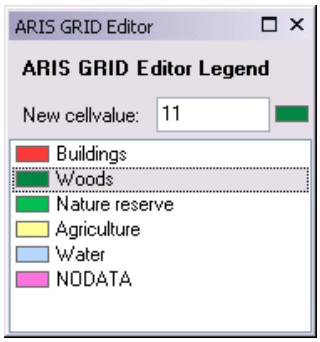
The GRID Editor will ask you for a new name, in which changes will be saved. This way, your original data will always be safe.



Enter a new name and press *Save*.

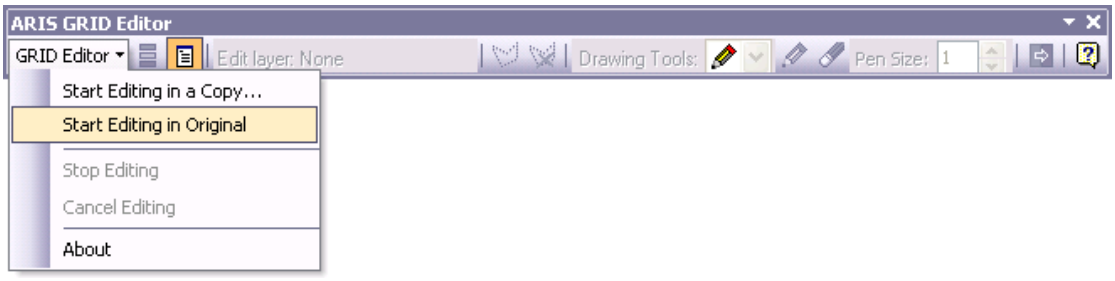
Note: A GRID name can only be 13 characters long, cannot contain any spaces, and cannot start with a number.

After copying your original GRID to the new one, the new GRID will be added to the map as a new layer. The GRID Editor Legend will be opened, and the ArcMap table of contents will be hidden.



The GRID Editor Legend reflects the current raster symbology for your GRID.

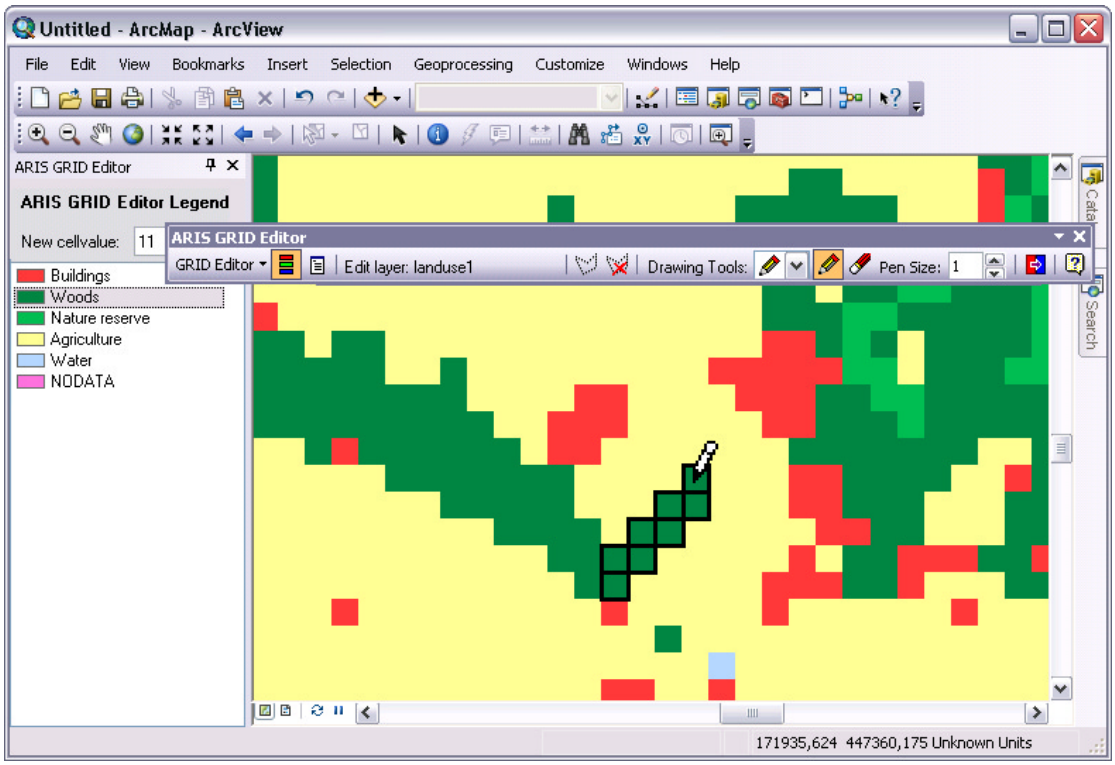
Tip: If you are sure to have a good **backup** it is faster to use the menu option ***Start Editing in Original...*** (not available in Trial mode).This way the ARIS GRID Editor will not have to make copies every time you start an editing session. Especially with very large grids this will enhance the performance significantly.



While *Editing in Original* you will be able to undo and redo only a limited number of actions through the ArcMap Edit / Undo and Redo menu or the Undo / Redo buttons on the ArcMap toolbar. Undo/Redo is limited to a certain number of actions and is NOT subject to selection area. Undo/Redo will be disabled with operations on a large number of cells to prevent memory problems (see Known Issues).

5.2 Editing a GRID

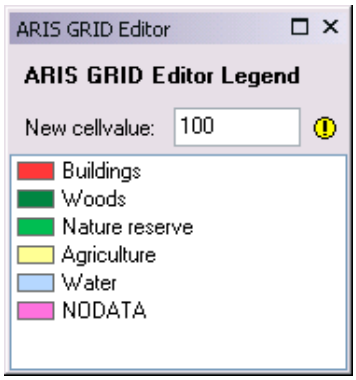
The GRID Editor Legend shows a list of available classes and the *New cellvalue*. Beside the available classes an extra legend item with the NODATA-symbol is added to the list. You can either select a legend item in the list, or manually enter it's numerical value in the edit box. Edited gridcells will be changed to this value.



To use the Nodata-value as New cellvalue, select the NODATA legend item in the list or enter the word *NODATA* in the edit box.

After selecting the desired legend item, choose a *drawing tool* from the *Drawing Tools* dropdown list. These tools work similar to most painting applications, such as *Paint*, *PhotoShop* and *Paint Shop Pro*. See paragraph 5.8 for a description of the available drawing tools in the ARIS GRID Editor Toolbar.

When a value is entered in the *New cellvalue* editbox that's not defined in the current classification, a yellow exclamation mark is shown, indicating that cells you edit may not show up on the map.



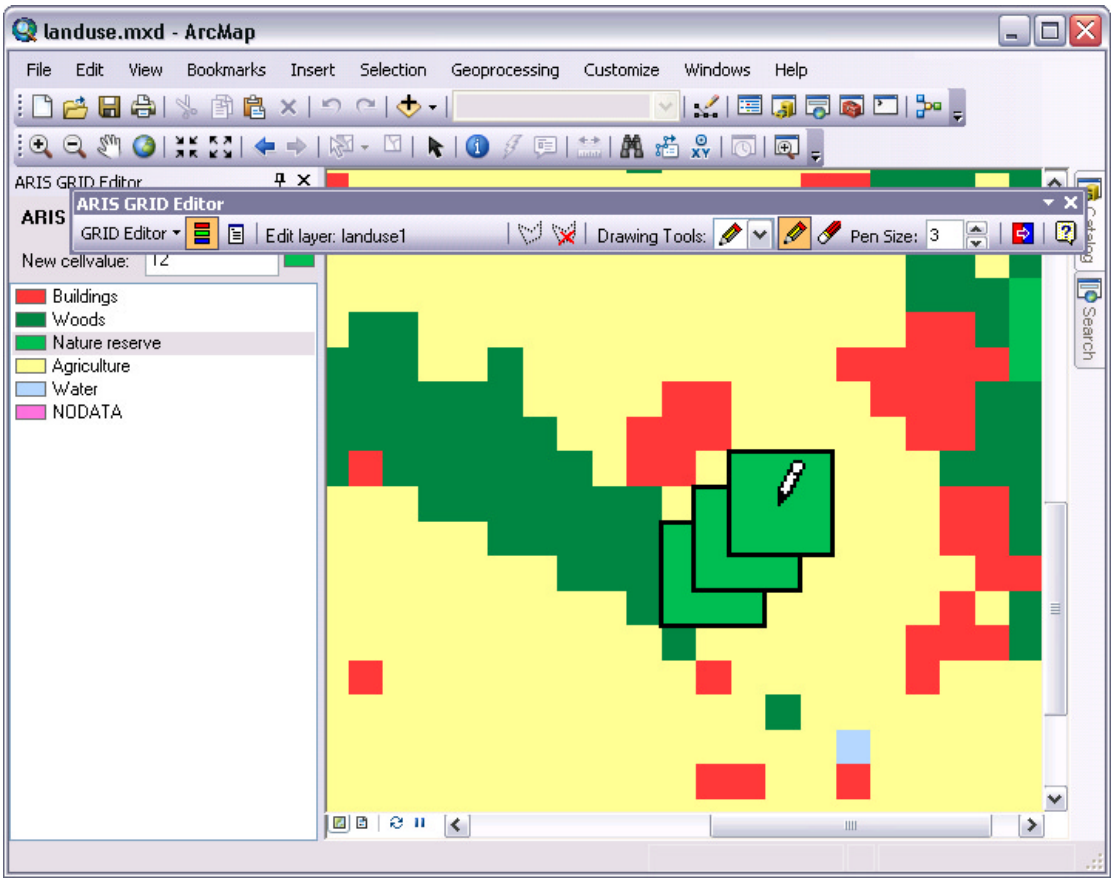
The symbol used for drawing cells with values not falling within the defined symbology depends on the type op classification:

Unique Values classification
The cells will typically be drawn using the "all other values" symbol if defined for the symbology. If "all other values" is not defined, new values will be drawn using the NODATA symbol, as defined in the layer properties. It's advised to always set "all other values" to an easily detectable symbology.

Classified or Stretched classification
The cells will typically be drawn using the NODATA symbol that's defined for the symbology.

5.3 Edit with pen size

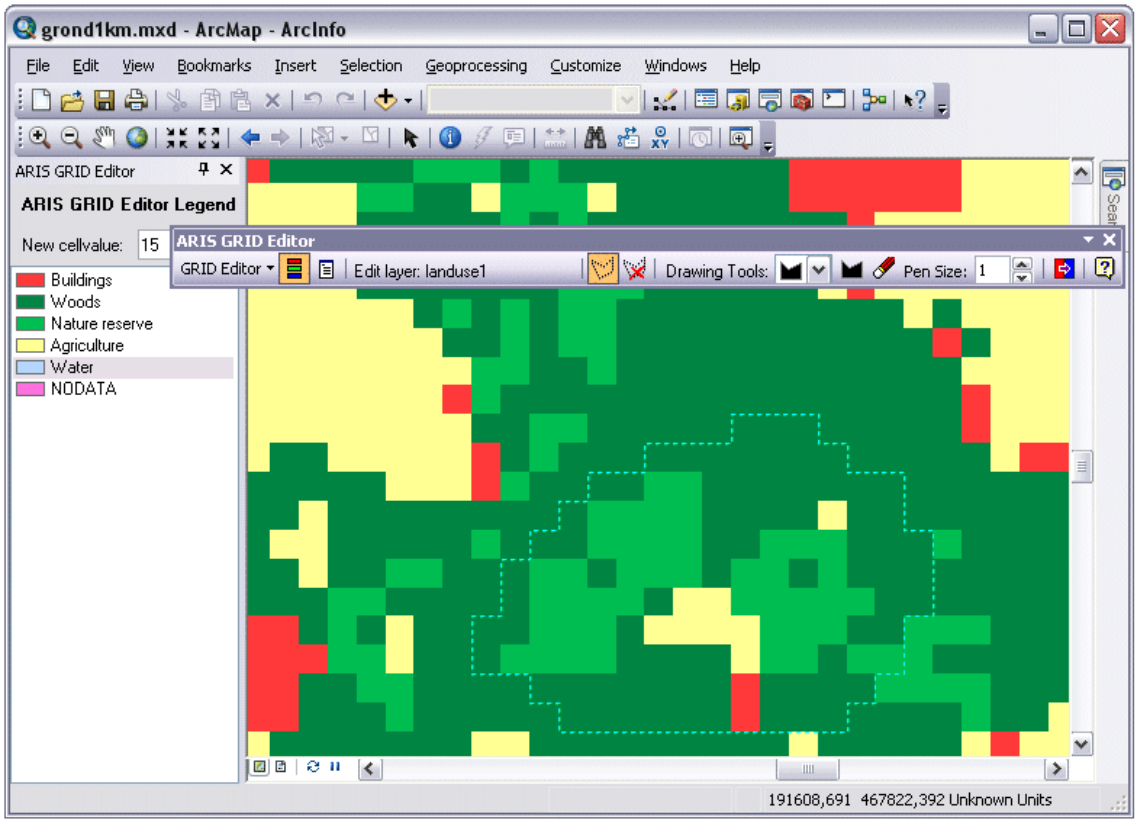
The tools Pencil, Line and the Eraser use the pen size to determine how many pixels (cells) must be affected.



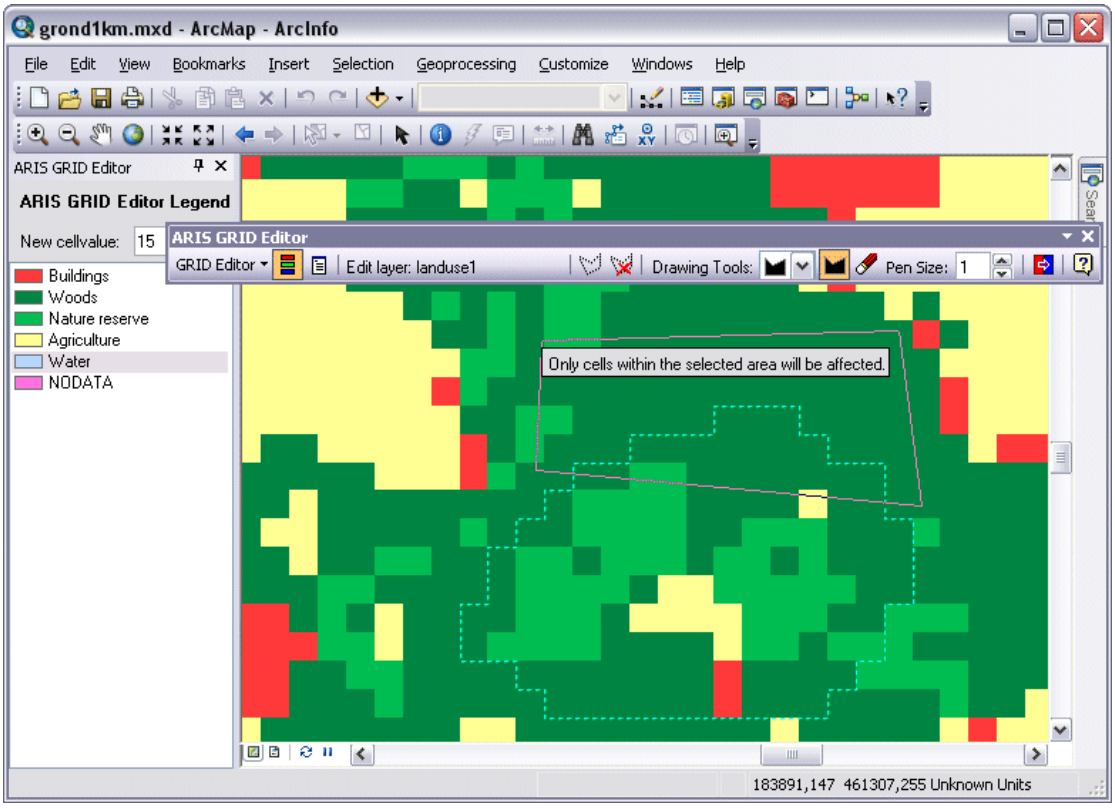
If you chose by example a pen size of 3 (as in the above example), not only the cell pointed at but also all cells next to the pointed cell will be edited. With greater pen size this increases accordingly. If you use even pen size, there is a priority of cells in the upper left to be edited.

5.4 Edit within selected area

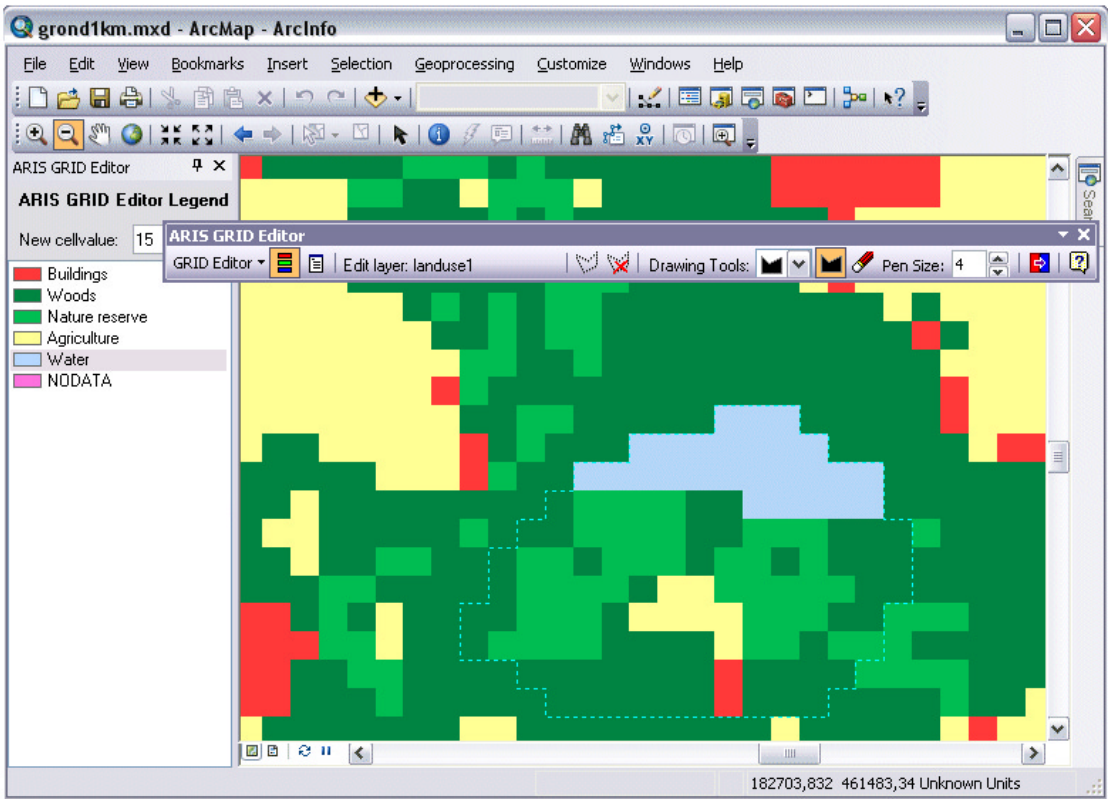
Choose the select area tool to draw an area within which all edit actions will take place. The select area only shows the exact outline of the selected cells. As soon as a selected area is present, the edit tools will only work for cells falling completely within this area. Also the replace value tool will only work on cells inside this area.



Use an editing tool like the Polygon Drawing Tool and draw a polygon:

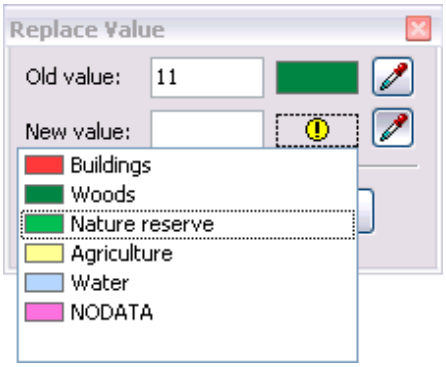


Only the cells that fall completely within the selection area will be affected:



5.5 Replace values

With the Replace Values tool (Value Replacer) values throughout the GRID or within the selection area can be replaced. A window is shown to select the values:



For Old value an existing value in the GRID has to be entered or selected from the legend by clicking the Warning symbol or picking a color from the GRID with the color picker . To New value applies the same, but also new (not yet existing) values in the GRID may be used.

5.6 Stop editing

To stop editing, choose Stop Editing from the GRID Editor dropdown menu. The edit session will be closed and the statistics of the new GRID will be recalculated. When new values have been used in the GRID, it may be necessary to change the symbology of the layer (and "Add value" or Add all values" to the legend).

5.7 Cancel editing

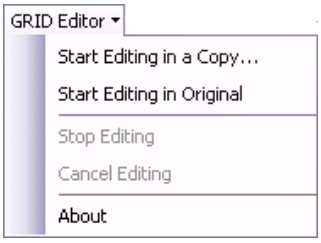
Editing is canceled and the new GRID will be deleted. The editing tools will be disabled.

Cancel editing is not available when *Start Editing in Original...* was chosen. In this case edits are saved immediately and can only be undone until a limited number of actions through the ArcMap Edit/Undo menu-option.

5.8 Description of the GRID Editor toolbar

If the GRID Editor toolbar is not visible in ArcMap, make sure *ARIS GRID Editor* is checked in the *View* | *Toolbars* menu.

The toolbar contains the following commands:



The GRID Editor dropdown menu contains the following options:

Start Editing in a Copy: The selected layer in the table of contents will be copied to a new layer. The editing tools are enabled for this new layer.

Start Editing in Original: The selected layer in the table of contents will be edited. No copy of backup will be made. (Not available in Trial mode).

Stop Editing: The edit session will be closed and the statistics of the new GRID will be recalculated.

Cancel Editing: Editing is canceled and the new GRID will be deleted. The editing tools are disabled.

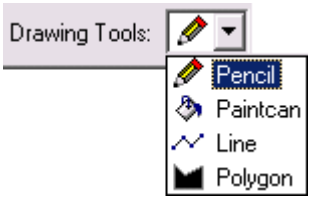
Toggle the visibility of the GRID Editor legend window. This button is enabled when a user starts editing, and disabled when editing is stopped or cancelled.

Toggle the visibility of the ArcMap table of contents.

The name of the currently editable layer, or *None* if the GRID Editor is inactive.

Select Working Area: Select an area within the map where changes can be made. All edit tools only apply to the selected area.

Select None: Remove the selection. All edit tools apply to the whole extent of the GRID.



The Drawing Tools dropdown list allows the user to change the drawing tool. The command button to the right of the combo box is used to actually perform the drawing operations on the grid.

Pencil: Tool for drawing individual pixels in the selected color. Either click on a cell, or drag the mouse over the map to create a sketch as freehand drawing (subject to selection area and pen size).

Paintcan: Tool for filling connected pixels of the same value. When clicking on a cell, all connecting cells of the same value will be filled with a new value (subject to selection area).

Line: Tool for drawing a line point-to-point. Click one or more times to create a *polyline*. Double click to finish drawing, or press the *Escape* key to cancel drawing (subject to selection area and

pen size).

Polygon: Tool for drawing a solid polygon. Click one or more times to create a polygon. Double click to finish drawing, or press the *Escape* key to cancel drawing (subject to selection area).

Eraser: Tool for restoring the original values of individual pixels while *Editing in a Copy* (subject to selection area and pen size).

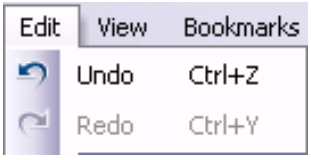
Not available when *Editing in Original*.

Pen size: Select pen size for pixel editing. Only affects pencil, line and eraser tool. Best effect with uneven pen size.

Replace Value / Value Replacer: Tool to replace one value with another within the entire GRID or the selected area (subject to selection area).

Displays the helpfile.

ARIS GRID Editor uses Undo while *Editing in the Original* in the standard ArcMap menu (not available when *Editing in a Copy*):



Undo: Undo an edit action in the edit GRID (the operation will be specified in this menu).

Redo: Redo an edit action in the edit GRID (the operation will be specified in this menu).

Undo / Redo is limited to a certain number of actions and is NOT subject to selection area.

Undo / Redo will be disabled with operations on a large number of cells to prevent memory problems (see Known Issues).

5.9 Restrictions

There are a number of restrictions that apply while editing a GRID.

- Only rasters in the ESRI GRID format can be edited.
- Only one GRID can be edited at a time.
- Changing to Page Layout mode will result in ending the Edit Session.
- Opening another ArcMap document will result in ending the Edit Session.
- The Data Source of the edit layer can be changed, but ARIS GRID Editor does not detect this change. Edits will be saved in the original data source of the edit layer and will not be visible in the map anymore.

5.10 Known issues

If the GRID Editor toolbar is not available from the *Customize* menu after installation, de-install the tool and try to install it again and explicitly run the setup as administrator. Note: Having administrator-privileges may not be sufficient.

After registering the GRID Editor for a permanent license it could occur that you have to enter your registration name and code every time you start up ArcGIS. Be sure to register the tool as an administrator. Note: Having administrator-privileges may not be sufficient.

The Current Coordinate System of the Data Frame should be the same as the Coordinate System of the GRID to be edited. Otherwise changes in the GRID might not correspond with the drawings on the screen and/or you are not able to change values (You will get a message: "Only cells within the extent of the GRID will be affected"). To change the Current Coordinate System choose View | Data Frame Properties… and then Tab Coordinate System.

The *New cellvalue* must be within the scope of the GRID (depending on Pixel Type and Pixel Depth), otherwise a warning is given when entering such a value in the *New cellvalue* edit box. E.g. a GRID with PixelType "unsigned integer" and Pixeldepth "8 bit" only "0" until "255" are valid values and a GRID with PixelType "signed integer" and Pixeldepth "8 bit" only "-127" until "127" are valid values.

Pyramids may cause non-visual edits (you edit but don't see any changes) during an edit session. After zooming in or Stop Editing the edits will show correctly. This typically occurs on a GRID with edits on a small scale (zoomed out). To prevent this behaviour, build pyramids with fewer levels or delete the pyramids of the base GRID (use the Build Pyramids geoprocessing tool or delete the .AUX and/or .OVR file).

Sometimes the Map Control has double scrollbars. The extra scrollbars do not influence the performance of the Grid Editor. This problem was not yet detected with ArcGIS 10 and may be solved in ArcGIS 10.

When using the *Discrete Color Renderer* for the GRID edit layer, the ARIS GRID Editor Legend cannot show a proper legend and will display: "This type of renderer can not be shown in a list". A *Discrete Color Renderer* is not a good renderer for editing, however, you can do edits by entering a *New Cell Value*.

Start Editing in a Copy can be slow when using a large GRID. Performance might get better when the GRID is stored on a local disk instead of a network disk. Also check whether free diskspace is at least as much as the size of the GRID to edit. *Start Editing in Original* does not make a copy of the GRID and should have less performance problems.

Memory problems may occur when using a large GRID and *Editing in Original* (caused by the *Undo* mechanism). In case of expected memory problems the user will be notified and *Undo* will be disabled. This will occur at about 200.000 potential processed cells in a selection area and 1.000.000 potential processed cells on other operations.

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